

The *Hamotus* of Arizona

(Coleoptera: Pselaphidae)

DONALD S. CHANDLER

Department of Entomology, University of Arizona, Tucson 85721¹

Hamotus Aubé is a large, almost entirely neotropical genus, which has been little known from the United States. It was first recognized in Arizona with Raffray's (1896) correct placement of *Tyrus elongatus* Brendel in *Hamotus*. Fletcher (1932) added *H. opimus* in 1932. These two are the currently known species in the United States. Two more species from Arizona, *H. nodicollis* Raffray and *H. populus*, new species, can now be added to the list.

The Arizona species can be placed in Group XII, subgenus *Hamotoides*, by Park's (1942) key to Raffray's groups due to the presence of the antebasal sulcus and the large median fovea of the pronotum. *H. elongatus* keys out to *nodicollis* and is separated by the characters given in my key to the Arizona species. *H. populus* cannot be placed by Park's key, being distinct by having antennal segments IX and X similar in form and size, and more than three times as long as segment VIII.

The species in Arizona inhabit different altitudinal areas and can be identified by this difference. *H. nodicollis* is found in rotting cactus and white-throated woodrat nests in Arizona and Sonora and can be considered a desert associate. *H. elongatus* is found under bark of dead trees (all records are pine) above 6,000 feet in mountainous areas. *H. populus* was collected in the intermediate elevations under bark of dead cottonwood.

An unplaced female specimen, characterized by thick, white setae on the antennal club, represents either an extreme of *nodicollis* or a new species. It is interesting as it was probably collected in association with *Zootermopsis laticeps* (Banks) (Isoptera: Hodotermitidae) when an ultraviolet light was run in a cage containing *Zootermopsis*-infested wood from Patagonia, Arizona (W. L. Nutting).

I would like to thank D. C. Rentz of the Academy of Natural Sciences of Philadelphia for the loan of the lectotype of *H. elongatus*; K. W. Brown of the Peabody Museum of Natural History, Yale University; M. W. Sanderson of the Illinois Natural History Survey and K. Stephan of Tucson for the loan of their collections. Dr. F. G. Werner checked the manuscript, for which I am grateful.

¹ Current address: Department of Entomology, The Ohio State University, Columbus 43210.

Key to Arizona Species of *Hamotus*

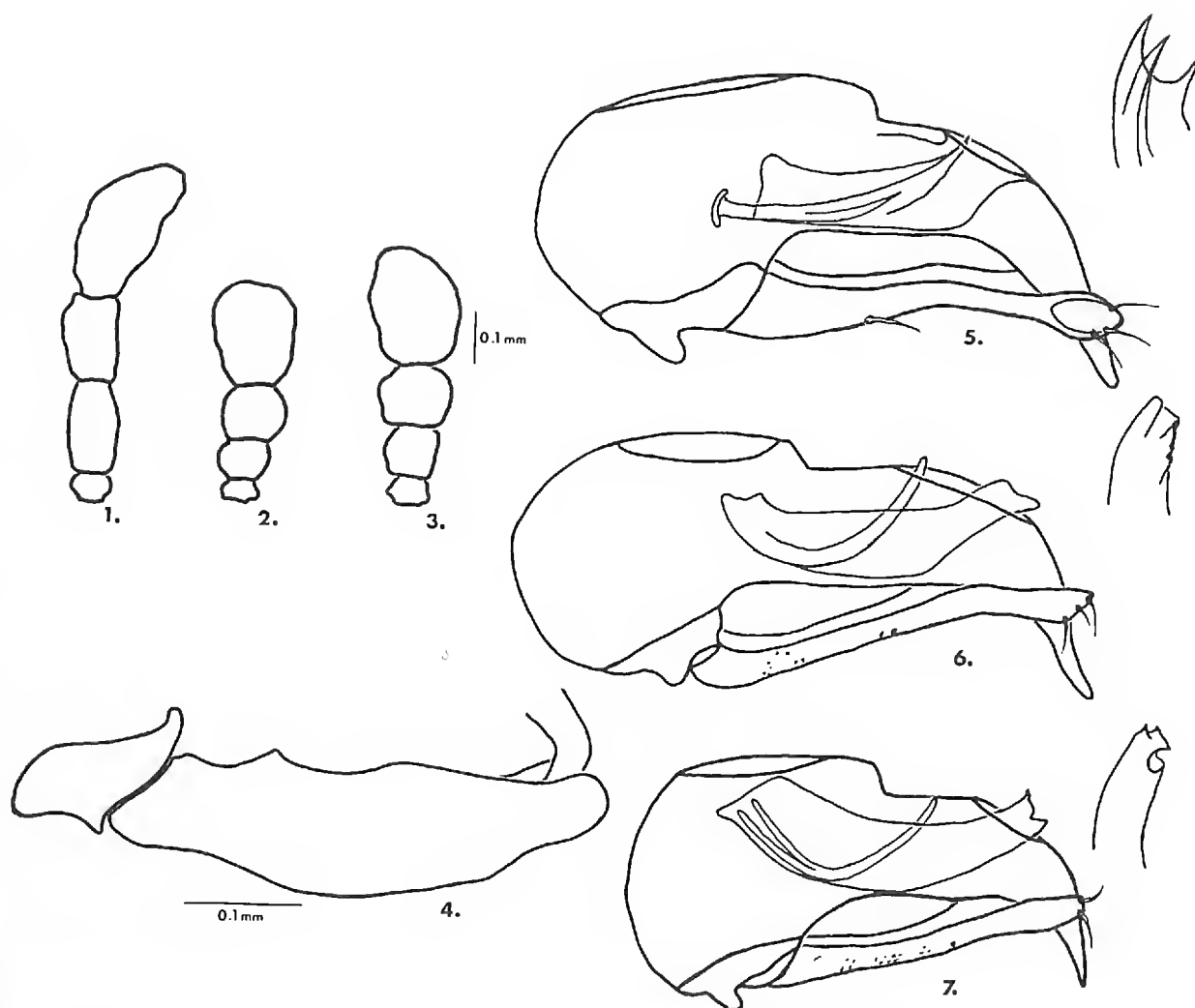
1. Antennal segments IX and X similar in form and size, each more than three times as long as segment VIII (Fig. 1) -----
----- *populus* Chandler, n. sp.
Antennal segment X larger than segment IX, IX at most barely more than twice as long as VIII (Figs. 2-3) ----- 2
2. Male profemur with tubercle near base (Fig. 4); elevations above 5,000 feet ----- *elongatus* (Brendel)
Male profemur without tubercle; elevations below 3,000 feet -----
----- *nodicollis* Raffray

***Hamotus* (*Hamotoides*) *populus* Chandler, new species**
(Figs. 1, 5)

Castaneous, flavous pubescence moderate in length; head subtruncate at base, eyes prominent, with posterior emargination across one-third of eye, emargination with dense, long pubescence; vertexal foveae small, median antennal fovea larger and oval; third segment of maxillary palpus with moderate groove through entire length; mandibles each with three teeth; antennae with distinct three-segmented club. Pronotum with small, prominent pronotal angles anterior to lateral foveae, anterior edge truncate; median and lateral foveae large, densely pubescent; distinct transverse sulcus much narrower than median fovea. Elytron with two basal foveae; tergites I-IV margined, tergite I with three lateral foveae to a side, II-III with two lateral foveae, IV-V with one; sternites I-IV with single large, deep lateral foveae to each side. Male with protrochanter spined, protibia with tubercle near base. Female without these projections.

Holotype male.—Cochise Stronghold, Arizona. Head 0.53 mm. long, width across eyes 0.51 mm., width across antennal insertions 0.28 mm.; 0.28 mm. from head base to median antennal fovea, vertexal foveae 0.09 mm. from median antennal fovea, 0.08 mm. from eyes; length and width of antennal segments: VIII 0.05×0.08 mm., IX 0.17×0.10 , X 0.17×0.11 , XI 0.23×0.14 ; third segment of maxillary palpus 0.30 mm. long, 0.11 mm. wide. Pronotum 0.52 mm. long, 0.54 mm. wide at pronotal angles, angles 0.26 mm. from base, apex 0.28 mm. wide; median fovea 0.09 mm. from base, 0.22 mm. from lateral foveae, lateral foveae 0.10 mm. from base. Basal foveae of elytron 0.19 mm. apart, elytron 0.24 mm. wide at base, 0.48 mm. wide near apex, 0.82 mm. long; width between foveae of abdominal tergites: I 0.41 mm., II 0.50 mm., III 0.45 mm., IV 0.40 mm., V 0.27 mm.; tergite V 0.16 mm. long, 0.34 mm. wide; width between lateral foveae of sternites: I 0.52 mm., II 0.59 mm., III 0.54 mm., IV 0.42 mm.; sternite V 0.33 mm. wide. Male profemur 0.59 mm. long, tubercle 0.17 mm. from base.

Holotype male.—Cochise Stronghold, Dragoon Mountains, Arizona, 27/30 July 1970, UV Trap, R. J. Shaw. Paratypes.—ARIZONA.—Cochise County: Cochise Stronghold, Dragoon Mountains, 1 female, 26 May/2 June 1970; 1 male, 2 females, 29 June/2 July 1970; 1 female, 2/5 July 1970; 1 female, 5/8 July 1970; 2 males, 18/21 July 1970; 2 females, 21/24 July 1970; 1 female, 24/27 July 1970; 1 male, eutopotypical; 2 males, 1 female, 31 July/2 August 1970; 1 male, 3/6 August 1970; 2 females, 6/9 August 1970; 1 male, 3 females, 9/12 August 1970;



FIGS. 1-7. Taxonomic characters of *Hamotus*. Fig. 1-3. Antennal segments VIII-XI. 1, *H. populus*; 2, *H. elongatus*; 3, *H. nodicollis*. Fig. 4. Protrochanter and profemur of male *H. elongatus*. Figs. 5-7. Left lateral view of male genitalia and dorsal view of penis. 5, *H. populus*; 6, *H. elongatus*; 7, *H. nodicollis*.

1 female, 12/16 August 1970; 2 females, 16/22 August 1970, UV trap, R. J. Shaw; 1 male, 29 July 1957, light, G. Butler. Pima County: 2 males, 10 mi. S.E. Mammoth, San Pedro River, 10 November 1971, under bark of dead cottonwood, D. S. Chandler. 1 female, Tucson, 8 August 1968, K. Stephan. Pinal County: 1 male, Mammoth, 17 November 1969, K. Stephan. MEXICO. *Sonora*.—1 male, 10 mi. E. Navajoa, 13 August 1969, blk. lt. trap, W. L. Nutting & F. G. Werner. The holotype to be deposited in the California Academy of Sciences. Paratypes in collections of K. Stephan, the University of Arizona and the author.

HAMOTUS (HAMOTOIDES) ELONGATUS (Brendel)

(Figs. 2, 4, 6)

Tyrus elongatus Brendel 1890: 239-240. (Type locality: Williams, Arizona).
Hamotus elongatus: Raffray 1896: 134. Bowman 1934. Park 1942: 308-309.

In Brendel's description of this species, he mentioned that the male profemur had a "small, sharp thorn on the basal, and a minute sharp

tubercle on the second third." However, this latter tubercle could not be found after examination of all available specimens and the lectotype. The femur is ridged somewhat at that point and may possibly be produced into a tubercle in some of the specimens Brendel saw. I have added a few details and measurements to Brendel's description.

Third segment of maxillary palpus with moderate groove through entire length; mandibles each with three teeth and a small tubercle; tergites I–IV margined, tergites I–III with two lateral foveae to a side, IV with one lateral fovea, V without foveae; sternites I–IV with single, large, deep lateral fovea to a side.

Redescribed male.—Santa Catalina Mountains, Arizona. Head 0.47 mm. long, width across eyes 0.43 mm., width across antennal insertions 0.25 mm.; 0.21 mm. from head base to median antennal fovea, vertexal foveae 0.07 mm. from median antennal fovea, 0.07 mm. from eyes; length and width antennal segments: VIII 0.04×0.07 mm., IX 0.08×0.10 , X 0.11×0.13 , XI 0.22×0.17 ; third segment of maxillary palpus 0.22 mm. long, 0.10 mm. wide. Pronotum 0.42 mm. long, 0.46 mm. wide at pronotal angles, angles 0.27 mm. from base, 0.40 mm. wide at base, apex 0.25 mm. wide; median fovea 0.08 mm. from base, 0.14 mm. from lateral foveae, lateral foveae 0.07 mm. from base. Basal foveae of elytron 0.06 mm. apart, elytron 0.21 mm. wide at base, 0.49 mm. wide near apex, 0.65 mm. long; width between lateral foveae of abdominal tergites: I 0.37 mm., II 0.38, III 0.37, IV 0.35; tergite V 0.15 mm. long, 0.28 mm. wide; width between lateral foveae of sternites: I 0.36 mm., II 0.47, III 0.46, IV 0.40; sternite V 0.34 mm. wide. Male profemora 0.40 mm. long, tubercle 0.09 mm. from base.

Distribution.—Through the mountains of southern Arizona and New Mexico. ARIZONA.—Cochise County: Rustlers Park, Chiricahua Mountains, 17 June 1973, under pine bark, D. S. Chandler. Graham County: Swift Trail, 7,400 ft., Pinaleno Mountains, 6 July 1973, under pine bark, T. P. Sluss & D. S. Chandler. Pima County: Santa Catalina Mountains, 7,000 ft., 5 April/23 May 1968, K. Stephan; 8,500 ft., 12 May 1948, A. A. Nichol; Bear Canyon, 25 January/29 March 1970, under pine bark, K. Stephan; Bear Canyon, 6,000 ft., 16 June 1970, 26 April 1973, under pine bark, D. S. Chandler. NEW MEXICO.—Lincoln County: Gallinas Mountain, T1S R11E, 7,000 ft., 1 July 1951, under bark of yellow pine, C. C. Hoff. Nogal Canyon, nr. Nogal, 7,200 ft., 5 June 1952, under bark, yellow pine log, Hoff & Parrack.

HAMOTUS (HAMOTOIDES) NODICOLLIS Raffray

(Figs. 3, 7)

Hamotus nodicollis Raffray 1883: 240. (Type locality: Mexico).

Hamotus (Hamotoides) nodicollis: Park 1942: 317; 1945: 413.

Castaneous, moderately dense, long pubescence; head subtruncate at base, eyes prominent, posterior emargination across one-third of eye, emargination with dense, long pubescence; vertexal foveae small, median antennal fovea larger and oval; third segment of maxillary palpus with moderate groove through entire length; mandibles each with four teeth; antennae with distinct, three-segmented club. Pronotum with small, prominent pronotal angles anterior to lateral foveae, apex truncate; median and lateral foveae large, densely pubescent; distinct transverse sulcus much narrower than median fovea. Elytron with two basal foveae; tergites

I-IV margined, I-III with two lateral foveae to a side, IV-V with one lateral fovea; sternites I-IV with single, large, deep, lateral fovea to a side. Male with protrochanter spined. Female without spine.

Redescribed male.—Tucson Mountains, Arizona. Head 0.45 mm. long, width across eyes 0.46 mm., width across antennal insertions 0.26 mm.; 0.24 mm. from head base to median antennal fovea, vertexal foveae 0.09 mm. from median antennal fovea, 0.07 mm. from eyes; length and width of antennal segments: VIII 0.04×0.07 mm., IX 0.10×0.10 , X 0.12×0.13 , XI 0.20×0.16 ; third segment of maxillary palpus 0.21 mm. long, 0.10 mm. wide. Pronotum 0.41 mm. long, 0.49 mm. wide at pronotal angles, angles 0.19 mm. from base, 0.47 mm. wide at base, apex 0.26 mm. wide; median fovea 0.10 mm. from base, 0.17 mm. from lateral foveae, lateral foveae 0.10 mm. from base. Basal foveae of elytron 0.15 mm. apart, elytron 0.22 mm. wide at base, 0.43 mm. wide near apex, 0.68 mm. long; width between lateral foveae of abdominal tergites: I 0.37 mm., II 0.45, III 0.44, IV 0.41; tergite V 0.20 mm. long, 0.32 mm. wide; width between lateral foveae of sternites: I 0.50 mm., II 0.56, III 0.51, IV 0.44; sternite V 0.39 mm. wide.

Distribution.—Through Arizonan and Sonoran desert areas into tropical Mexico. ARIZONA.—Gila County: Globe, 28 August 1952, light F. H. Parker. Pima County: Ariz.-Son. Desert Museum, 1/4 August 1962, lt. trap, W. L. Nutting & S. Oman. Colossal Cave Park, 18 April 1968, K. Stephan; 9 October 1971, 27 October 1971, 31 December 1971, in rotting saguaro, D. S. Chandler. 3 mi. S.W. Redington, 10 November 1971, in rotting saguaro, D. S. Chandler. Saguaro National Monument, 30 December 1972, in decayed saguaro, F. Werner. Silverbell, IBP Research Area, 10 mi. W. Marana, 13 October 1971, in rotting saguaro, D. S. Chandler. Tucson (Catalina Foothills) Den #2, *Neotoma* sp., 2 August 1962, W. L. Nutting & P. Mehlinger. Tucson Mountains, 15 February 1970, 21 March 1970, saguaro, K. Stephan. Pinal County: Boyce Thompson S. W. Arboretum, Superior, 14 September 1949, lt. trap, B. W. Benson. MEXICO. Sonora.—5 mi. W. Alamos, 14 August 1959, black light trap, W. L. Nutting & F. G. Werner. 11.5 mi. E. Alamos, 31 November 1972, in rotting Cardon, K. Stephan & D. S. Chandler. 13.5 mi. E. Alamos, 29 November 1972, under bark, K. Stephan & D. S. Chandler. 10 mi. E. Navajoa, 13 August 1959, black light trap, W. L. Nutting & F. G. Werner.

LITERATURE CITED

- BOWMAN, J. R. 1934. The Pselaphidae of North America. Privately published, Pittsburgh, 149 pp. (not seen).
- BRENDEL, E. & H. F. WICKHAM. 1890. The Pselaphidae of North America. Bull. Lab. Nat. Hist., State Univ. Iowa, 1: 216-304.
- FLETCHER, F. C. 1932. Undescribed North American species of Pselaphidae (Coleoptera), including a synopsis of the genus *Rhexidius* Casey. Canad. Entomol., 64: 29-35.
- PARK, O. 1942. A study in neotropical Pselaphidae. Northwestern Univ. Studies Biol. Sci. Med., No. 1, 403 pp.
1945. Further studies in Pselaphidae (Coleoptera) of Mexico and Guatemala. Bull. Chicago Acad. Sci., 7: 331-443.
- RAFFRAY, A. 1883. Pselaphides nouveaux ou peu connus. Revue D'Entomol., 2: 229-250.
1896. Notes synonymiques sur les Pselaphides. Ann. Soc. Entomol. France, 65: 131-137.